

**REMARKS/ARGUMENTS**

Claims pending in this application are Claims 1-8. Claim 1 has been amended to overcome obviousness rejections. Accordingly, upon entry of these amendments, Claims 1-8 will be before the Examiner for consideration.

**35 U.S.C. § 103(a) Rejections**

1. The Examiner had rejected Claims 1-5 under 35 U.S.C. §103(a) as being unpatentable over Spencer, et al., (U.S. Pat. No. 5,996,501 hereinafter referred to as the "Spencer reference"). The Examiner states that the Spencer reference discloses a composition that comprises 25% of RDX, 30% of AP, 33% of Al, and 12% wax binder, and that the exact amounts and the use of HMX is not disclosed. The Examiner states that it would have been obvious for one having ordinary skill in the art at the time the invention was made to vary the parameters of the explosive such as the amount of binder and oxidizers to achieve a desired result. Additionally, that it would have been obvious to use HMX in place of RDX because they are similar nitramines and also Spencer indicates that either RDX or HMX can be used. Applicants respectfully traverse. Rebuttal to this rejection is explained in #5.

2. The Examiner had rejected Claims 6-8 under 35 U.S.C. §103(a) as being unpatentable over Spencer, et al., as applied to claims 1-5 above, and further in view of Martin, et al., (U.S. Pat. No. 6,503,350 hereinafter referred to as the "Martin reference"). The Examiner states that the Martin reference teaches that one can vary the size of the metal particles such as aluminum in order to tailor the burn rate for the desired application and that the range of metal particle sizes is from about 10nm to about 40 micrometers. Furthermore, it was stated that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the particle sizes as taught by Martin since Martin suggests that the particle size can be varied in order to modify the burn rate of the propellant. Applicants respectfully traverse. Rebuttal to this rejection is explained in #5.

3. The Examiner had rejected Claims 1-5 under 35 U.S.C. §103(a) as being unpatentable over Baldwin, et al., (U.S. Pat. No. 3,804,683 hereinafter referred to as the "Baldwin reference"). The Examiner states that the Baldwin reference discloses a

composition that comprises 20.5% of Al, 30.2% of HMX, 19% of AP, and 10.1% of binder, and that the exact amounts are not disclosed (not sure what the later is referring too?). Furthermore, that it would have been obvious to one skilled in the art at the time the invention was made to vary the parameters of the explosive such as the amount of binder and oxidizers to achieve a desired result. Applicants respectfully traverse. Rebuttal to this rejection is explained in #5.

4. The Examiner had rejected Claims 6-8 under 35 U.S.C. §103(a) as being unpatentable over Baldwin, et al., as applied to claims 1-5 above, and further in view of Martin et al. The Examiner states that the Martin reference teaches that one can vary the size of the metal particles such as aluminum in order to tailor the burn rate for the desired application and also teaches the range of metal particle sizes is from about 10nm to about 40 micrometers. Furthermore, that it would have been obvious to one having ordinary skill in the art at the time the invention was made to use the particle sizes as taught by Martin since Martin suggests that the particle size can be varied in order to modify the burn rate of the propellant. Applicants respectfully traverse. Rebuttal to this rejection is explained in #5.

5. The following is in response to the 103(a) rejections stated in 1-4 above.

Combining the factual inquires set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966) and later endorsed by *In re Oetiker*, 977 F.2d 1443, 24 USPQ 2d 1443 (Fed. Cir. 1992), indicates that a prima facie case of obviousness is established when the Examiner provides the following elements:

1. One or more references
2. that were available to the inventor and
3. that teach
4. a suggestion or combine or modify the references,
5. the combination or modification of which would appear to be sufficient to have made the claimed invention obvious to one of ordinary skill in the art.

Accordingly, an applicant who is able to prove that the Examiner has failed to establish any one of these elements should prevent the prima facie case of obviousness from being established. The Federal Circuit has endorsed this view in *In re Oetiker*, stating that “[i]f the examination at the initial stage does not produce a prima facie case of unpatentability, then without more the [A]pplicants are entitled to grant of the patent.”

Claim 1 has been amended to include the annular construction having the second grain substantially surrounding the first grain to overcome the 103(a) rejections. Specifically, Claim 1 has been amended to limit the explosive composition to the arrangement of the first and second grains. Support for such amendment to independent Claim 1 is described in the Applicants' application and illustrated in Figure 1. The following arguments of Applicants are in light of the newly amended Claim 1.

The fourth element requires some reason, suggestion, or motivation from the prior art as a whole for the person of ordinary skill to have combined or modified the references. [O]bviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion ...supporting the combination". (see *In re Geiger*, 815 F.2d 686, 2 USPQ 2d 1276, 1278 (Fed. Cir. 1987)). The mere fact that the prior art may be modified in the manner suggested by the Examiner it does not make the modification obvious unless the prior art suggested the desirability of the modification. The Applicants recognize that one can theoretically explain the technological rationale for the claimed invention using selected teachings from the references cited by the Examiner; however, this approach has been criticized by our reviewing courts as hindsight construction. (see *In re Fine*, 837 F.2d at 1075, 5 USPQ 2d at 1600). Applicants respectfully believe that the Office Action is relying on hindsight to arrive at the determination of obviousness. It is impermissible to use the claimed invention as an instruction manual or "template" to piece together the teachings of the prior art so that the claimed invention is rendered obvious. One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Respectfully, however, in view of newly amended claim 1, neither of the Spencer, Baldwin, or Martin references alone or combined stated by the Examiner, teach or suggest Applicants claimed invention as a whole, which is: "A solid fuel air explosive comprising a first grain high explosive; a second grain metal fuel grain, wherein the second grain substantially surrounds the first grain; about 4.0 to about 6.0 weight % of at least one binder; and about 14.0 to about 36.0 weight % AP." This annular construction is illustrated in Figure 1.

In regards to the Spencer reference, it teaches the exact opposite to Applicant's amended claims. In the Applicants present invention, the first grain has a more ideal explosive which includes high levels of high explosive nitramine (HMX, RDX or CL-20) to serve as the center burst charge, while the outer charge (second grain) is comprised of high levels of reactive metal which serves as the metal fuel grain. Upon detonation of the center explosive burst charge, the metal fuels in the second grain are dispersed to form a hot metal cloud, which will not only exert the blast effect locally, it can also flow to the near-by room/areas and thus greatly increase the total effected area. This leads to enhanced lethal/damaging effects, especially in confined room structures. This uniform and effective dispersion of metal particles allow better mixing of fuel with the air, which greatly enhances the combustion efficiency of the dispersed metal fuel. This annular construction feature promotes an enhanced blast warhead. This annular construction of the explosive charge, as shown in Fig. 1 of Applicants present drawing has been shown to be superior than the construction taught in Spenser's patent, which the high explosive charge and the fuel charge are reversed. Furthermore, the Spencer references does not teach a solid fuel air explosive having about 4% to about 6% binder.

The Martin reference does not teach a solid fuel air explosive comprising a first grain high explosive; a second grain metal fuel grain, wherein the second grain substantially surrounds the first grain; about 4.0 to about 6.0 weight % of at least one binder; and about 14.0 to about 36.0 weight % AP. The Martin reference teaches a propellant composition and not an explosive composition. The Martin reference also does not teach the annular construction of the explosive as claimed in the Applicants invention.

As a result, the Spencer reference does not teach alone or in combination with the Martin reference, a solid fuel air explosive comprising a first grain high explosive; a second grain metal fuel grain, wherein the second grain substantially surrounds the first grain; about 4.0 to about 6.0 weight % of at least one binder; and about 14.0 to about 36.0 weight % AP. Applicants believe that the Spencer reference alone and combining the Spencer reference with the Martin reference does not establish a prima facie case of obviousness in light of the newly amended Claim 1 and respectfully request reconsideration and withdraw of the 103(a) rejections of numbers 1 and 2 above.

In regards to the Baldwin reference, the Examiner stated that the binder taught comprises 10.1%. However, the Baldwin reference does not teach or suggest a solid fuel air explosive comprising a first grain high explosive; a second grain metal fuel grain, wherein the second grain substantially surrounds the first grain; about 4.0 to about 6.0 weight % of at least one binder; and about 14.0 to about 36.0 weight % AP. The Baldwin and Martin reference neither alone nor combined teach or suggest the annular construction of the first and second grain of the Applicants invention as illustrated in Figure 1 and the binder weight % of about 4 to about 6%. Newly independent Claim 1 has been amended to include this limitation.

Furthermore, both the Martin and Baldwin references teach propellant compositions and not explosive compositions, which are completely different fields of inventions (non analogous art). In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned. The Baldwin reference was to solve the problem of manufacturing a propellant with low burning rates without any added burning rate modifier. The Martin reference was to solve the opposite problem and achieve high burning rates. The Applicants present invention is to achieve an explosive formulation capable of maintaining a relatively high blast pressure in an oxygen poor environment. For example, propellants make things go faster, explosives blow things up; as a result, the two fields are solving very different problems. Applicants believe that the Baldwin reference alone and combining the Baldwin reference with the Martin reference does not establish a prima facie case of obviousness in light of the newly amended Claim 1 and respectfully request reconsideration and withdraw of the 103(a) rejections of numbers 3 and 4 above.

The Federal Circuit has endorsed this view in *In re Oetiker*, stating that "[i]f the examination at the initial stage does not produce a prima facie case of unpatentability, then without more the [A]pplicants are entitled to grant of the patent." Since none of the above references alone or in combination teach nor suggest the subject matter as a whole in newly amended Claim 1, reconsideration of newly amended Claim 1 and its dependent

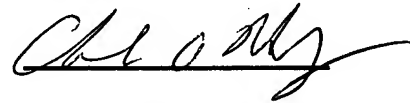
Claims 2-8, and withdrawal of these grounds for the 103(a) rejections are respectfully requested.

The Commissioner is authorized to charge any fees associated with filing of this response to Deposit Account No. 50-0931.

Applicants submit that all grounds for rejection of claims presented herein have been addressed and amended as such. Accordingly, Claims 1-8 will be before the Examiner for prosecution on the merits.

Applicants invite the Examiner to call the undersigned if clarification is needed on any aspect of this response, or if the examiner believes a telephonic interview would expedite the prosecution of the subject application to completion.

Respectfully Submitted,



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**Amendments to the Drawings:**

There are no amendments to the drawings.